REMARKS

The Applicants do not believe that examination of the response contained herein will result in the introduction of new matter into the present application for invention. Therefore, the Applicants, respectfully, request that the response contained herein be entered in and that the claims to the present application, kindly, be reconsidered.

The Office Action dated November 3, 2004 has been received and considered by the Applicants. Claims 1-60 are pending in the present application for invention. Claims 1-60 are rejected by the November 3, 2004 Office Action.

The Examiner takes official notice that predetermined fraction of the video source frames, and a predetermined number of video source frames are both well known and widely used techniques of determining the passage of time in an audio/visual program. The Applicants respectfully traverse the taking of Office Notice by the Examiner. The Examiner has taken the recitation for video source frames, and a predetermined number of video source frames out of context and attempts to view the recitation for a predetermined fraction or percentage of the video source frames out of context. The Applicants respectfully request that the Examiner produce prior art references illustrating the subject matter defined by the recitation for a predetermined fraction or percentage of the video source frames within the context within which it is used in rejected Claims 11, 12, 41 and 42.

The Office Action rejects Claims 1-6, 8-36, and 38-60 are rejected under the provisions of 35 §U.S.C. 103(a) as being obvious over U.S. Patent No. 6,219,837 issued to Yeo et al. (hereinafter referred to as Yeo et al.), in view of U.S. Patent No. 6,137,544 issued to Dimitrova et al. (hereinafter referred to as Dimitrova et al.). Regarding Claims 1 and 31, the Examiner states that Yeo et al. disclose a system and method for processing video source frames as recited by rejected Claim 1 and 31 except for the elements of storing the algorithm in memory and the termination of the extraction of frames prior to completion of the execution of video source frames.

The Examiner's position is that Yeo et al. disclose a system and method for processing video source frames including: a video frame extraction algorithm that dynamically and non-contiguously extracts key frames from the video source frames during execution of the video source frames. The Applicants would like to, respectfully,

pointed out that Yeo et al. teach a server 401 that is remote from the actual computer, television or other display device that will ultimately display video signal. The processing of the video signal and embedding of summary frames within the video is taught by Yeo et al. takes place within the server 401. The video signal 406 is then transmitted to the communication channel 402. The communication Channel 402 then transmits the video signal 406 to computational devices or set-top boxes. The present invention relates to actions that take place within the computational devices or set-top boxes to process the video signal that is received via a communication channel. Yeo et al. relates to the embedding of summary frames that takes place at remote server prior transmission via a communication channel. Therefore, to clearly distinguish the subject matter defined by the claims to the present invention from the teachings of Yeo et al., independent Claims 1 and 31 have been amended to clearly indicate that the processing takes place within a display system or a display device, such as a set-top box or a computational element. The Applicant's, respectively, point out that Yeo et al. do not perform video processing as part of a display system or a display device. Moreover, the Applicants respectfully submit, that the above discuss the amendments tailors the contexts by which the remaining elements of independent Claims 1 and 31 can be viewed. For example, elements related to dynamically and not contiguously extracting frames from the video source must now be viewed as being done by a display device or a display system. Furthermore, elements related to terminating the extraction of keyframes must also be viewed as being accomplished by a display device or a display system. The Applicants, respectfully, assert that the server 401 and is taught by Yeo et al. can not reasonably be interpreted as a display device or a display system, even using the most broad definition of these terms. Therefore, the Applicants respectfully assert that the foregoing discuss the amendment obviates any rejection based upon Yeo et al.

The Office Action states that Dimitrova et al. teach an algorithm stored in the memory structure at Fig. 2A coupled to a processor as described on col. 4, lines 29-30. The Office Action further asserts that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Yeo et al. to specify a key frame extraction algorithm stored in the memory coupled to the processor. The Applicants, respectfully, submit that in view the foregoing amendment is not possible to modify Yeo

et al. in the manner suggested by the Office Action. Yeo et al. relates to actions and perform remotely by server 401 and not by the local display device. Dimitrova et al. relates to frame filtering that is dynamically accomplished in real-time as part of the display device, whereas, Yeo et al. pertains to a remote server 401 that performs the video processing in a preset manner that is neither dynamic nor in real-time. Instead, Yeo et al. teach the processing that is static and not real-time. The video processing of Yeo et al. is static because the video signal that dissent through communication channel 402 will be identical for all clients. Therefore, the summary frames are static. The present invention dynamically extracts key frames during execution of the video source frames, execution relates to the display device or a display system that is currently displaying the video source frames.

The Office Action states that Dimitrova et al. teach a terminating mechanism that terminates extraction of the key frames prior to completion of execution of the video source frames at col. 3, lines 39-42. The Examiner's position is that Yeo et al. suggest, and Dimitrova et al. teach, that once key frames are no longer of interest to the viewer, their extraction and display are no longer necessary, and stopping their extraction and display would free processor time for other tasks that may have more value to the viewer. The Applicants would like to, respectfully, point out that col. 3, lines 39-42 of Dimitrova et al. simply state that if a tape or file is not completely recorded to one time, then a partially recorded video index to be stored on the tape or file or in memory for later additions. There is no terminating or terminating mechanism for the extraction of keyframes prior to completion of execution of the video source frames that is disclose or suggested at col. 3, lines 39-42 of Dimitrova et al., or within the four corners of Dimitrova et al. The Applicants fail to see how simply storing an index file as taught by Dimitrova et al. can be read on the elements for terminating or terminating mechanism for the extraction of key frames prior to completion of execution of the video source frames recited by independent Claims 1 and 31. The Applicants, respectfully, submit that the foregoing discuss the elements related to terminating the extraction of key frames prior to the completion of the execution of the source video frames are not found within any of the cited references.

Regarding the rejection to Claims 2, 3, 4, 5, 32, 33 and 35, the Applicants,

respectfully, submit that the above discussed amendments to independent Claims 1 and 31 obviates and renders moot these rejections. Moreover, as previously discussed the elements related to the terminating of the extraction of key frames prior to the completion of the execution of the source video frames are not found within any of the cited references.

Regarding Claims 6 and 36, the Examiner states that col. 5, lines 405 of Yeo et al. suggests indicating a key frame at the end of extraction of key frames. The Examiner's position is that the statements "in live broadcasts, summary frames of past content to be selected" suggests the subject matter defined by the rejected claims for recording in the first memory an indication of the video source frame been executed when the terminating occurred. The Applicants, respectfully, assert that the selection of past content to as nothing to do with recording in the first memory an indication that the video source frame being executed when the terminating occurred. The Applicants, respectfully, request that the Examiner explain the reasoning that is being applied here. For the applicants fail to see how recording in the first memory an indication of the video source frame been asked to do when the terminating occurred is suggested by selecting summary frames for past content during live broadcasts.

The Examiner further states that Dimitrova et al. teaches the subject matter for processing video source frames comprising a recording mechanism that records in the first memory an indication of a video source frame being executed when the extraction of key frames is terminated. The Examiner's position here is that the final step within Fig. 1 of Dimitrova et al. for Transfer Data Structure to Tape As Visual Index 107 is equivalent to recorded an indication of the video source frame been executed when the extraction of key frames is terminated. The Applicants would like to recite from the specification of Dimitrova et al. that portion that describes the Transfer Data Structure to Tape As Visual Index 107 on col. 3, lines 31-34 where it is stated that "in step 107, the data structure is transferred from the memory to the source tape, creating the visual index. The tape may then be rewound to view to the visual index." There is no disclosure, or suggestion, of a video source frame been executed when terminating occurred within Fig. 1 of Dimitrova et al. There is only simply a mention transferring the data structure from memory to source tape. Therefore this rejection is respectfully traversed.

Regarding Claims 8 and 38, the Examiner states that Yeo et al. disclose a way to terminate key frame viewing at col. 3, lines 44-46. The Examiner admits that Yeo et al. did not disclose terminating the extraction of keyframes. However, the Examiner's position is that the statements "if your race like to delete the summary frames from the screen if they wish" at col. 3, lines 44-46 of Yeo et al. suggests terminating being triggered by user action as recited by rejected Claims 8 and 38. Initially the Applicants, respectfully, point out that terminating within rejected claims 8 and 38 refers to terminating the extraction of key frames prior to completion of executing the video source frames. It is the Applicants' position and that simply deleting the summary frames is not equivalent to terminating the extraction of key frames prior to completion of executing the video source frames wherein the terminating is initiated by a user action.

The Examiner further states that Dimitrova et al. at col. 3, lines 44-46 disclose a system and method for processing video source frames wherein the terminating is triggered by action of a user-controlled device. The Examiner's position is that the teaching of Dimitrova et al. for allowing a user to stop the playing a videotape and access to the visual index on the videotape is equivalent to terminating the extraction of key frames by user action. The Applicants respectfully disagree. Stopping the play of a videotape is not equivalent to terminating the extraction of key frames by user action.

Regarding Claims 9 and 39, the Examiner states that Yeo et al. disclose a system and method for processing video source frames at col. 3, lines 446-48 wherein the viewer may select to delete the summary frames. The Applicants, respectfully point out that the Examiner's position is inconsistent with the above discussed rejection to Claim 8 and 38. Claims 9 and 39 depend from Claim 8 and 38. In the above discussed rejection to Claims 8 and 38, the Examiner's position was that stopping the play of a videotape is equivalent to terminating the extraction of key frames by user action. Claims 9 and 39 depend from and further define Claims 8 and 38. In the rejection to Claims 9 and 39, the Examiner attempts to employ a user action (deleting summary frames) that is not equivalent to the action employed in the rejection for Claim 8 and 38 (stopping the play of a videotape). Simply put, the user action for deleting summary frames is not an action for terminating the extracting of key frames. The Applicants, respectfully, assert that deleting summary frames is not at all similar to the terminating the extracting of key frames by

manipulating a user device as defined by rejected Claim 9 and 39. Therefore, this rejection is respectfully traversed.

Regarding Claims 10 and 40, the Examiner attempts to read Yeo et al. at col. 3, lines 46-48 that states that the summary screens disappear from the screen if the channel has not been changed for a long time on the recitation of the rejected claims for terminating the extracting of key frames. Initially, the Applicants point out the basic flaw in the overall rejection of the Office Action. Once being viewed by the user, the video provided Yeo et al. is not extracting key frames (summary screens) because the key frames were already extracted prior transmission of the video signal. This portion of Yeo et al. simply states to stop displaying summary screens, which is not equivalent to terminating the extraction of key frames. The flaw here is that the system and method of Yeo et al. was not extracting key frames prior the event (e.g. the channel not being changed for a while), the summary screens were previously extracted prior reception of the video signal they only stop being displayed.

The Examiner further states that Dimitrova et al. teach terminating the processing of video source frames when a predetermined condition has occurred. The Applicants respectfully point out that this is not what is recited by rejected Claims 10 and 40. Rejected Claims 10 and 40 recite that the terminating of the extracting of key frames occurs when a predetermined condition has occurred. The terminating of the extracting of key frames occurs when a predetermined condition has occurred is not disclosed or suggested by Dimitrova et al. or Yeo et al., either alone or in combination. Therefore, this rejection is traversed.

Regarding Claims 11-12 and 41-42, the examiner states that Yeo et al. disclose a system and method for terminating the viewing of key frames after a predetermined time has passed at col. 3, lines 46-48. As previously discussed, the disappearance of the summary screens from the display is not equivalent and doe not render obvious the termination of the extracting of the key frames. They are completely different items.

The Examiner takes official notice that predetermined fraction of the video source frames, and a predetermined number of video source frames are both well known and widely used techniques of determining the passage of time in an audio/visual program. The Applicants respectfully traverse the taking of Office Notice by the

Examiner. The Examiner has taken the recitation for video source frames, and a predetermined number of video source frames out of context and attempts to view the recitation for a predetermined fraction or percentage of the video source frames out of context. The Applicants respectfully request that the Examiner produce prior art references illustrating the subject matter defined by the recitation for a predetermined fraction or percentage of the video source frames within the context within which it is used in rejected Claims 11, 12, 41 and 42, for terminating the extraction of key frames prior execution of the video source frames. The terminating of the extracting of keyframees when a predetermined fraction or percentage of the video source frames has occurred is not disclosed or suggested by Dimitrova et al. or Yeo et al., either alone or in combination. Therefore, this rejection is traversed.

Regard Claims 13 and 43, the Examiner states that Yeo et al. disclose a system and method for indicating the predetermined condition as the elapsing of predetermined time duration from initiation of executing the video source frames at col. 3, lines 46-48. As previously discussed, the disappearance of the summary screens from the display is not equivalent and doe not render obvious the termination of the extracting of the key frames. Therefore, this rejection is traversed

Regarding Claims 14 and 44, the Examiner states that Yeo et al. disclose a system and method for processing video source frames comprising an output display through which a user may review the extracted key frames, wherein the output display is coupled to the processor. The Applicants believe that the forgoing amendment renders this rejection moot.

Regarding Claims 15 and 45 the Examiner states that Dimitrova et al. disclose a system and method for processing video source frames wherein the output display includes a television screen or a computer monitor. The Applicants believe that the forgoing amendment renders this rejection moot.

Regarding Claims 16-18 and 46-48, the Examiner states that Yeo et al. discloses a system and method for processing video source frames wherein the system permits review of the key frames prior to, when, or after completion of execution of the video source frames, or before the terminating mechanism terminates extracting the key frames. The Applicants would like to, respectfully, point out that this rejection is inconsistent

with the rejection to Claim 1. The execution discussed in the rejection to Claim 1 took place in the server 401. There can be no review prior executing within such a context. Therefore, this rejection is respectfully, traversed.

Regarding Claims 19 and 49, the Examiner states that Yeo et al. disclose a system and method for processing video source frames wherein the system permits review of the key frames upon or after completion of execution of the video source frames. The Applicants respectfully submit that this rejection is moot in view of the foregoing amendment.

Regarding Claims 20, 21, 50, and 51, the Examiner states that Yeo et al disclose a system and method for processing video source frames comprising and erasing mechanism that erases the key frames from the first memory at or after completion of review of the key frames by the user, and that action is triggered by action of the user. The Applicants respectfully submit that this rejection is moot in view of the foregoing amendment.

Regarding Claims 22 and 52, the Examiner states that Yeo et al. disclose a system and method for processing video source frames comprising a user input device for user manipulation. The Applicants respectfully submit that this rejection is moot in view of the foregoing amendment.

Regarding Claims 23 and 53, the Examiner states that Yeo et al. at col. 6, lines 6-9 and col. 3, lines 46-48 disclose a system and method for processing video source frames wherein the erasing mechanism is triggered when a predetermined condition has occurred. The Applicants respectfully submit that this rejection is moot in view of the foregoing amendment.

Regarding Claims 24 and 54 the Examiner states that Yeo et al. disclose a system and method for processing video source frames wherein the erasing mechanism is triggered when a predetermined condition has occurred, if that condition includes completion of execution of the video source frames. The Applicants respectfully submit that this rejection is moot in view of the foregoing amendment.

Regarding Claims 25 and 55, the Examiner states that Yeo et al. at col. 3, lines 46-48 disclose a system and method for processing video source frames wherein the predetermined condition includes an elapse of a predetermined amount of time following

the review of the key frames. The Applicants respectfully submit that this rejection is moot in view of the foregoing amendment.

Regarding Claims 26 and 56, the Examiner states that Yeo et al. disclose a system and method for processing video source frames comprising a second memory of the memory structure and a transferring mechanism, wherein the transferring mechanism transfers the key frames from the first memory to the second memory, and wherein the second memory includes a removable memory. The Applicants respectfully submit that this rejection is moot in view of the foregoing amendment.

Regarding Claims 27 and 57, the Examiner states that Yeo et al. suggest a system and method for processing video source frames comprising key frames in a first memory and a mechanism to transfer the key frames from the first memory to the second memory, but does not specifically disclose erasing the key frames after the transfer. The Applicants respectfully submit that this rejection is moot in view of the foregoing amendment.

Regarding Claims 28 and 58, the Examiner states that Yeo et al. disclose a system and method for processing video source frames wherein the video frame extraction algorithm comprises a content-based method of video frame extraction. The Applicants respectfully submit that this rejection is moot in view of the foregoing amendment.

Regarding Claims 29 and 59, the Examiner states that Yeo et al. disclose a system and method for processing video source frames with two methods, but does not disclose four distinct methods of content-based key frame extraction. The Examiner further states that Dimitrova teaches a system and method for processing video source frames wherein the content-based method includes a keyframe scene detection method, a Method Two keyframe scene detection method, a Method Three keyframe scene detection method, and a Method Four keyframe scene detection method. The Applicants respectfully submit that this rejection is moot in view of the foregoing amendment.

Regarding Claims 30 and 60, the Examiner states that Yeo et al. disclose a system and method for processing video source frames wherein the video frame extraction algorithm comprises a content-independent method of video frame extraction. The Applicants respectfully submit that this rejection is moot in view of the foregoing amendment.

The Office Action rejects Claims 7 and 37 under the provisions of 35 U.S.C. 103(a) as being obvious over Yeo et al., and Dimitrova et al, as applied to Claims 1, 6, 31, and 36 above, and further in view of U.S. Patent No. 6,473,095 issued to Martino et al. (hereinafter referred to as Martino et al.). The Examiner essentially recites the elements of the rejected claims and states that Martino et al. disclose as much at col. 4, lines 21-22. The Applicants would like to, respectfully, point out that the cited section of Martino et al. is referring to key frames formed into groups represented by histograms. There is no disclosure, or suggestion, for these histogram as discussed at col. 4, lines 21-22 being related to an indication of a video source frame executed when the execution of the key frame is terminated and specifically, not when the indication is recorded in a special key frame appended to the extracted key frames. Therefore, this rejection is respectfully traversed. The foregoing amendment to the claims has corrected these oversights.

Applicant is not aware of any additional patents, publications, or other information not previously submitted to the Patent and Trademark Office which would be required under 37 C.F.R. 1.99.

In view of the foregoing amendment and remarks, the Applicant believes that the present application is in condition for allowance, with such allowance being, respectfully, requested.

Respectfully submitted,

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